# CONTENTS

John M. Prausnitz ..... vii

Experimental and theoretical investigations of the properties of J.M. Prausnitz
H. Knapp (Berlin, F.R.G.) ..... 1

Mixture radial distribution functions: are they all independent?
E.Z. Hamad and G.A. Mansoori (Chicago, IL, U.S.A.) ..... 13

Thermodynamic properties of polar fluids from a perturbed-dipolar-hard-sphere equation of state: mixtures
V. Brandani, G. Del Re, G. Di Giacomo and L. Gambacciani (L'Aquila, Italy) ..... 23

An equation of state for associated systems
J. Hong and Y. Hu (Shanghai, China) ..... 37

Modification of the extended UNIQUAC model for ternary and quaternary liquid–liquid equilibrium calculations
I. Nagata (Kanazawa, Japan) ..... 53

Azeotropes and pseudo-azeotropes
E.-U. Schlünder (Karlsruhe, F.R.G.) ..... 71

Generalized Rackett-type correlations to predict the density of saturated liquids and petroleum fractions
J.O. Valderrama and B.F. Abu-Sharkh (Dhahran, Saudi Arabia) ..... 87

Extension of a cubic equation of state to solids
E. Lang and H. Wenzel (Erlangen, F.R.G.) ..... 101

Salting effect of di(2-ethylhexyl) phosphoric acid in chloride solutions
J.-F. Lu, Y.-G. Li, H.-B. Ding and T. Teng (Beijing, China) ..... 119

Computer simulation of complex multicomponent hydrocarbon distillation by continuous thermodynamics
M.T. Rätzsch, H. Kehlen and J. Schumann (Merseburg, G.D.R.) ..... 133

Fluid phase equilibrium and volumetric properties from the chain-of-rotators group contribution equation of state
J.D. Pults, R.A. Greenkorn and K.-C. Chao (West Lafayette, IN, U.S.A.) . 147

The NRTL equation at upper critical mixing points and its application to mixtures of n-methylpyrrolidone with n-nonane and cyclooctane
H.J. Bittrich, G. Feix, D. Lempe and K. Reinhardt (Merseburg, G.D.R.) .. 161

On the equations for excess Gibbs energy
D.-Y. Peng (Saskatoon, Sask., Canada) ..... 171

Comparison of methods for calculating third virial coefficients: application to binary mixtures of $CO_2$ with $N_2$, $CH_4$, and $C_2H_6$
H.B. Brugge, L. Yurttas, J.C. Holste and K.R. Hall (College Station, TX, U.S.A.) ..... 187

A consistent method to combine the PRSV EOS with excess Gibbs functions
G. Wilczek-Vera and J.H. Vera (Montreal, Que., Canada) ..... 197

Correlation of second virial coefficients by application of chemical theory and group contribution concept, Part 1, pure substances
G. Olf, J. Spiske and J. Gaube (Darmstadt, F.R.G.) . . . . . 209
A generalized equation of state for pure polar and nonpolar fluids
B. Platzer and G. Maurer (Kaiserslautern, F.R.G.) . . . . . 223
An equation of state for fluids of polar and moderately flexible molecules
M.A. Siddiqi and K. Lucas (Duisburg, F.R.G.) . . . . . 237
Effect of molecular shape on liquid mixture excess properties
J. Fischer and M. Bohn (Bochum, F.R.G.) . . . . . 245
Correlation of solubilities of gases and hydrocarbons in water
J.M. Mollerup and W.M. Clark (Worcester, MA, U.S.A.) . . . . . 257
Phase equilibria of the binary systems of $CF_4$ + methylpropane and $CF_4$ + dimethylpropane measured in a new low-temperature high-pressure apparatus
H. Reisig, K.-D. Wisotzki and G.M. Schneider (Bochum, F.R.G.) . . . . . 269
New determinations of high pressure vapor–liquid equilibria in binary systems containing n-propylbenzene with nitrogen or carbon dioxide consistent with the Prausnitz–Keeler test
H. Renon, S. Laugier, J. Schwartzentruber and D. Richon (Paris, France) 285
Vapor–liquid equilibria in the nitrogen + carbon dioxide + ethane system
T.S. Brown, E.D. Sloan and A.J. Kidnay (Golden, CO, U.S.A.) . . . . . 299
The liquid–liquid–vapor phase equilibria behavior of the $CO_2$ + ethane + n-tetradecylbenzene mixture
M.M. Miller and K.D. Luks (Tulsa, OK, U.S.A.) . . . . . 315
Vapor pressure of HD, HT, and DT
A.E. Sherwood (Alamo, CA, U.S.A.) . . . . . 327
The search for tricriticality in binary mixtures of near-critical propane and normal paraffins
C.J. Peters, H.J. van der Kooi, J.L. de Roo, J. de Swaan Arons (Delft, The Netherlands), J.S. Gallagher and J.M.H. Levelt Sengers (Gaithersburg, MD, U.S.A.) . . . . . 339
The volumetric analysis and prediction of liquid–liquid–vapor equilibria in certain carbon dioxide + n-alkane systems
J. van der Steen, Th.W. de Loos and J. de Swaan Arons (Delft, The Netherlands) . . . . . 353
Sorption equilibria and diffusion in polymeric membranes
J. Hauser, A. Heintz, B. Schmittecker and R.N. Lichtenthaler (Heidelberg, F.R.G.) . . . . . 369
*Author Index* . . . . . 383